



# vms—the series continues

by Les Lathrop and The Legion of Doom/Hackers

The VMS Operating System supports all VAX-11 series computers. The system permits an absolute limit of 392 concurrent processes. This depends on the physical memory and secondary storage available. The practical limit is in excess of 100 concurrent users for a large scale system. The initial license fee is \$18,800, and when run on the VAX 8900 the fee is \$15,000. There are an estimated 32,000 sites running VAX, VMS, UNIX is the operating system which can run on both the VAX and PDP machines. In this series we will explain in detail the more useful commands, notable differences at Version 4.0 and higher, and the new security features and software available for VMS.

### Logging In

```

Command: VMSMAIL
Password:
LDD:01 Network Communications Resources
VAX/VMS Version 4.2
Last interactive login on Wednesday, 01-07-86 14:55:10:11
Last noninteractive login on Friday, 26-MAY-1985 18:38:27
2 failures since last successful login
You have 1 new mail message
5
    
```

All login procedures are executed by one of two methods, interactive or noninteractive. Interactive logins require the user to follow the prompts of the system for information. Noninteractive logins are performed exclusively by the system without user interaction.

Types of logins are: 1) Local. This is executed by a user who is directly connected to the PDP-11 dial-up. Login using dial-up lines; 2) Remote. Remote logins are performed to a node over a network; 3) Network. Network logins are noninteractive as they are accomplished automatically when a user accesses files stored in a directory on another node or performs a network task on a remote node assuming they are both nodes on the same network; 4) Batch. A Batch login is another noninteractive automatic procedure performed when a batch process initiated by a user actually runs on a process. Batch process logins are always noninteractive although it is also a result of a user executing either a specific process form of a command or a system service. Other types are: Proxy login, a type of network login permitting a user to access files across a network, or a Detached process login which can be specified by the user as either interactive or noninteractive. It is a result of a user executing either a specific process form of a command or a system service.

### Common Accounts

Here are some very common accounts which are available access. One note: there is a difference between default and common accounts. Defaults are set by the manufacturer, and common accounts are characteristic of most computers or operating systems of the same class.

Command	Password:
RJE	RJE
HOST	HOST
LINK	LINK
INFO	INFO
BACKUP	BACKUP
NETWORK	NETWORK
DEFMAIL	DEFMAIL
HELPDESK	HELPDESK
REPORTS	REPORTS

As you have noticed, we are relying on the user to use their username as a password. If none of these work, last names, social security numbers, initials, etc. might work.

### Password Security

Passwords can be selected by the user or automatically generated by the system. User selected passwords require a minimum length of characters to prevent use of familiar easy-to-guess words. Automatically generated passwords offer the user a choice of randomly selected characters resembling English. All passwords need to be changed about every 30 days and are one-way encrypted when stored. There are 2 levels of passwords used. A user password is assigned at the majority of users. A system password is required prior to a user password when restricting access to a particular terminal. For maximum security five user passwords may be required, a primary password and successively a secondary password. I have not encountered this yet, but I thought I would point out the capabilities of the VMS security system.

### Terminal Barriers

On some systems, after successfully logging in with the username, password combination, the system may ask you to enter a dialup, modem, remote, etc. password. It may dump you into an application program or it may just you a device not found error. In any case, this prevents you from gaining access to the operating system. A possible way around this is to hang up and call back the system, but control is and/or control-y after the initial login sequence. This will prevent the system from executing the security program, login.com file, application program, or detect that there is not a device assigned to the user in question. This might have to be tried a few times, since timing may be crucial. Most likely, it will not be possible to break out of the program itself after login.

features of the terminal's security and ability which inhibit the ease of control-y. If this control-y work, then security control-y has been implemented from the start of logging in, which is accomplished by limiting addresses and changing the user characteristics to the UAC. But this is exactly not doing, whether it's because the system manager is very important, or maybe the use of the control character is needed later in the login session. Thus, unauthorized access to the machine is always possible.

### Security Features

Security for VMS is based on the reference monitor concept. Under this concept the reference monitor is the central security point for the following: 1) Subjects: users, processes, batch jobs; 2) Objects: files, programs, terminals, tapes, disks, mailboxes; 3) Reference monitor database: user authorization files, rights database, file protection, access control lists; 4) Security audit. The reference monitor system auditors every attempt by a subject to gain access to an object. The greatest advantage of VMS is its flexibility. The system manager can choose to implement or ignore a wide range of security features. Fortunately for the hacker, they all seem to ignore the important ones. It is possible to protect all, any, or none of the files created. It is also possible to provide general or restricted passwords, or no passwords at all. Access codes can be global or limited. The use log can be ignored, used only for record keeping, or be employed as a security control tool. Finally, the encryption system can be activated where needed, defaulting to unmodeled material for normal use.

VAX/VMS has the following security features that are designed to prevent unauthorized access or tampering: 1) Provides a system of password controls and access levels that allow the security manager to open sections of the system only to those users with a particular requirement or legitimate interest; 2) Keeps a careful log of all interactions so that questionable user can be challenged and documented; 3) Supports an encryption system that allows system management to create coding keys that are necessary for access to programs or databases. The encryption system of VAX/VMS provides an additional level of security, however the other security features are sufficient to deter most users. The encryption system included on the operating system package would probably not stop those few who motivated. The crypt facility does not use a sufficiently complex algorithm to be unbreakable, although it is could slow down a brute force potential hacker.

### Internal Security

VAX/VMS determines access to objects by utilizing two protection mechanisms: Access Control Lists (ACLs) and User Identification Codes (UICs). It links the two together, at first with user privileges for access.

Access Control Lists: The ACL uses identifiers to security users. There are three types: 1) UIC identifiers depend on the user identification code that uniquely identifies each user on the system; 2) General identifiers are defined by the security manager on the system rights database to identify groups of users on the system; 3) System-defined identifiers describe certain types of users based on their use of the system. An ACL consists of one or more Access Control List Entries (ACEs). There are three types of these: 1) Identifier ACE: This controls the type of access allowed to a particular user or group of users. Access types are: READ, WRITE, EXECUTE, DELETE, CONTROL, and NONE; 2) Default protection ACE: This defines the default protection for directory files only; 3) Security alarm ACE: Watch out for this one! It provides an alarm message when an object is accessed. This will alert managers to possible security threats. Alarms may be generated when an unauthorized user performs the following access types: READ, WRITE, EXECUTE, DELETE, or CONTROL. Alarms are also issued for SUCCESS or FAILURE of these attempts.

User Identification Codes: As stated in an earlier installment, each user has a UIC. Each system object also has an associated UIC, defined to be the UIC of its owner, and a protection code that defines who is allowed what type of access. Also mentioned earlier was the protection put on objects, System, Owner, Group, and World. Depending on these, the protection code can grant or deny access to allow a user to read, write, execute, or delete an object. When we log in, the permissions (which are in our "rights database") are copied into a rights list that is part of our process. The rights list is the structure that VMS uses to perform all protection checks.

### Audit Trail

The security log feature, if activated, and that's a big if, is a major disadvantage for the hacker. Log codes can alert an operator to an improper look; review can isolate users attempting to exceed access restrictions. The system can "freeze" a terminal if a breach is observed, or if multiple wrong access codes are attempted. Of course, the low system functions succeed after the fact and it is possible, though difficult, to alter the security log. A terminal can be designated as an audit alarm console and all auditable events are displayed on the console. Some events, such as certain login failures and uses of privilege are always auditable. Other events, such as successful or unsuccessful attempts to gain access to sensitive files, can be selected by users or security managers for auditing. For example, the owner of a sensitive file might create an ACL entry restricting that all accesses to that file be audited. Whether someone reviews that audit is another story.

# It Could Happen To You!

A bizarre story is unfolding in New York City, one which typifies both hacker ingenuity and corporate indifference to the average customer.

It all started when Hacker A met Hacker B on a loop somewhere. At first they got along quite well, exchanging all kinds of information. Over time, however, Hacker B got more and more obsessed, while Hacker A wanted to get on with a normal life. B would not stop calling A, which led A to tell B that if he didn't stop bothering him, he would get the authorities on his case. Well, B didn't and A did. And that's where the trouble really started.

For the last couple of years, almost every few minutes, A's phone has been ringing. At the other end is either B or someone or something that B has programmed. Sometimes nothing is said; sometimes a threat is uttered; sometimes the caller just laughs. A and his family have been trying, literally for years, to put an end to this. At first they simply changed the number to an unlisted one. Within an hour, B had found the new one. So they tried to change it again. New York Telephone refused. Either they would have to pay an exorbitant fee this time, or the number would not be changed. They said it was impossible for somebody to find out their number so fast—he must have been told by somebody in the family.

This scene was repeated a number of times, with A's family

changing their number practically a dozen times and having to pay the fee for most of them. It reached the point where B would call them *before* they received their new number to tell them what the new number would be.

This wasn't all. B had also managed to charge outrageous amounts to the family's phone bill. He would call their answering machine collect on a long distance trunk and make it sound to the operator as if someone had said "yes". Then he'd leave the connection open for hours. He also managed to place third party calls, using their number as the billing number. Their bill was outrageous and the phone company insisted that they were responsible for it. Their service was disconnected when they didn't pay and today they are slowly paying back the huge debt.

Meanwhile B has tried to get the authorities to look at A (whose address and phone number he has), with only lukewarm interest. The FBI says it has an eye on him, but won't help B deal with the phone company.

To this day it continues. The calls keep coming and B is powerless to do anything. A knows the phone system like the back of his hand and he can make it do almost anything. The phone company does not want to admit this and, on many levels, is incapable of understanding it themselves. The result: an innocent victim gets it from both ends.

## DIAL BACK SECURITY

A computer security device that is often referred to as being foolproof is the dial back system. In the case of a dial back system, a computer has a dial up access number where users may enter their user IDs and then their passwords. Then they hang up or are disconnected from the computer and the very system they just called will call back on a prearranged number after a short period of time. The hacker cannot penetrate this because after he discovers the working ID/password combination, he cannot do anything but hang up and wait for the computer to call out to the prearranged number. It is extremely difficult for a hacker to receive a call at that prearranged number, unless he taps into the cable-pair at the home or office of the person who owns the account and then uses a portable computer and modem while squatting in a sewer, on a telephone pole, or perhaps in bushes.

The number itself is not specified when the call is initiated, but at some previous time, usually when the account was first set up. Many companies rely on dial-back systems for protection and will walk around smiling, lost in nirvana over how secure their systems are—how foolproof they are. But these systems are potentially vulnerable. These vulnerabilities are due to the phone system and the modems used, and make it all too possible for a hacker to connect to the callback call and fool the modem into thinking it had dialed the legitimate user.

### How

Some older telephone switches use caller control where the call is only disconnected if the caller who originates the call hangs up. This means that a modem could not hang up on a caller—usually a local caller—who dialed into the computer. The modem would go "on hook", and the computer would think that it hung up, but the caller would still be there the second it picked up again to make an outgoing call.

The modem might not notice that they were still there and would attempt to dial and then wait until the call went through and for a modem to pick up. After a short period of time an answer tone could be sent, and they would be connected to the system simply by not hanging up.

Of course, some modems incorporate dial tone detection before dialing and ringback detectors. These will not dial until they "hear" a dial tone and then a ring, but these could be fooled with a recording of a dial tone or a ring.

Some modems will even try to pick up a ringing line and attempt to make an outgoing call on it. This could be used by a system penetrator to break dial back security even on joint control or called party control switches. A penetrator would merely have to dial in on the dial-out line, just as the modem was about to dial out. The same technique of waiting for dialing to complete and then supplying an answerback could be used as well as the recorded dialtone technique.

Calling the dial-out line would work well in cases where the modem has disabled auto-answer because it was about to pick up (answer) the phone in order to start dialing.

Even carefully written software can be fooled by the ring window problem. Many COs actually will connect an incoming call to a line if the line goes off hook just as the call comes in without first having put the 26 Hz. ringing voltage on the line to make it ring. The ring voltage in many telephone central offices is supplied asynchronously every 6 seconds to every line on which there is an incoming call that has not been answered, so an incoming can be answered in some cases before a ring can be detected.

This means that a modem that picks up the line to dial out just as our penetrator dials in may not see any ring voltage and may therefore have no way of knowing that it is connected to an incoming call. And even if the switch always rings before connecting an incoming call, most modems have a window just as they are going off hook to originate a call when they will ignore transients (such as ringing voltage) on the assumption that they originate from the going-off-hook process.

It is impossible to say with any certainty that when a modem goes off hook and tries to dial out on a line which can accept incoming calls it really is connected to the switch and actually making an outgoing call. And because it is relatively easy for a system penetrator to fool the tone detecting circuitry in a



## Teenagers "Abuse" Party Line

*By Carol Price*

Northwestern Bell has cancelled a teenage-oriented telephone chatting service, which some callers used to solicit sex and arrange drug deals. The service, known as GAMBLEN, had been in use for two and a half months. It was discontinued less than 24 hours after reporters from WCCO-TV in Minneapolis gave them transcripts of conversations they had tape-recorded.

"What they showed us were transcripts of conversations regarding explicit sex, extreme profanity, and conversations dealing with drugs and drug purchasing," company spokesman John Walker said.

"We had anticipated there would be some profanity, and we fully expected there would be some language that would be unacceptable to some people," he said. "But clearly, what WCCO outlined calls for much closer scrutiny as to the way we present this service in the public marketplace."

## A Unique Obscene Caller

*By Carol Price*

A Montville (NJ) High School music teacher has been charged as the man who made hundreds and perhaps thousands of obscene telephone calls to area women while impersonating a police officer during the past two years. Morris Township police have announced.

According to police, the suspect is accused of making random calls to an undetermined number of women posing as an "Officer Brill," who claimed he was investigating harassing and lewd calls.

"He would seek the women's cooperation, asking them to go along with anyone who placed an obscene call to them," a detective said. "Then he'd call the person back and engage in a conversation filled with vile and lewd language. In some cases, he would even contact the woman again, asking her to repeat the language used in the call. The calls were made for some type of sexual gratification."

Authorities were frustrated until late November when a case was opened concerning a woman being subjected to harassing calls. A "trap" was placed on her telephone line, allowing the calls to be traced. The suspect made a random call to this woman and New Jersey Bell was able to trace it to him. An investigation of the defendant was then begun that included a wakenup of his residence and the placement of a anti-authorized device on his phone line that prints out all numbers called from that location [known as a pen register].

Police said the subject would "fire off" as many as two or three calls a minute until he encountered a woman's voice that appealed to him.

## The Scoop on Pen Registers

*By Carol Price*

A Congressional survey has found data indicating that Federal law enforcement agencies (such as the FBI and the IRS) installed secret electronic devices to record telephone numbers that were dialed from 3,400 telephones in a recent 12-month period.

Unlike telephone taps and room bugs, which record actual conversations, these devices are not covered by the Federal and state laws restricting electronic surveillance, and the Supreme Court has ruled their use does not violate the Constitution's

provision against improper Government searches.

Federal and state wiretapping laws generally require the police to obtain a special warrant before installing the more prying surveillance devices and to make annual public reports summarizing the total number of interceptions for each tap, the number of people who have been overheard talking, and the number of people indicted, for instance, in the 1984 calendar year. Federal agents obtained warrants for 289 taps and bugs that were operated from one to 394 days. As a result, 50,147 persons were overheard making 536,775 conversations. This resulted in 795 arrests.

In the last few years the Supreme Court has handed down several decisions holding that the information collected by the simpler number-recording devices does not require any legal protection, largely because the court concluded that which numbers were dialed from a telephone was far less revealing than actual conversations. However, officials of such organizations such as the American Civil Liberties Union and A&E (surprised?) have contended that a record of what numbers a person dials, the length of each conversation, and the times they were made can provide a revealing portrait of who someone's friends and associates are and what are the target's daily habits.

These number-recording devices were used even before the computer era; they kept track of the number of clicks as a dial spun back into place. A pen would make a mark for each click, which accounts for the name "pen register".

## Reporters Steal Swiss Phones

*By Carol Price*

Reporters covering the US-Soviet summit in Geneva boosted the profits of the Swiss telephone company by spending about \$1 million to fix their stories. The money spent on telephones and telex messages will mean a net profit of \$500,000 for the state-owned postal and telecommunications service, said Oscar Gada, customer relations director.

But the profits will be reduced by the money it will take to replace the telephones that disappeared. "We are up to 50 missing phones so far and are still counting," Gada said. "They probably were kept as souvenirs."

The 3,000 reporters made 10,000 phone calls, 1,600 of them cables, and there were 937 telex calls representing 1,631 full pages or 190 hours of transmission time.

Gada said the agency did not receive a single complaint about its summit service and even received a letter of thanks and congratulations from US Secretary of State George P. Shultz.

## Pay Phone Causes Panic

*By Carol Price*

A ticking sound from a telephone sent 50 travelers scurrying behind ticket counters at the Monroe (Louisiana) Regional Airport to shield themselves from what they thought was a bomb.

But the ticking just meant that the telephone's coin box was full of quarters, nickels, and dimes, police said.

Monroe police, airport security officers, and the Monroe bomb squad approached the phone cautiously, in case a bomb had been planted inside.

A slightly embarrassed police spokesman said it was the "totalizer," a mechanism that clicks when the coin box in a pay phone has been filled up.

## THIS MONTH'S MAIL

### Dear 2600:

My high school has a PDP with 48 VT101 terminals. They are very reluctant (probably just ignorant) to give out any sort of information. They feel that the system's use is only for learning Basic and Pascal—no experimentation. But this should be expected.

I have inquired many times about controlling the cursor and the graphics on VT101 terminals, and they have threatened and warned me not to play with things I don't know. I am requesting information on where I can acquire information on the VT101 terminal (books, companies, etc.). If you could publish this information I am positive many readers would find it useful.

Artful Dodger

### Dear Dodger:

Perhaps one of our erudite readers will send us such a list. In any case, yours is a familiar problem—one that breeds the hacker instinct.

### Dear 2600:

Here are some notes on the schematics you published in your October, 1985 issue for a "blue box".

A) The power supply that regulates the 18V input to 10V output is not necessary. While the dual battery arrangement will provide longer operating time between battery changes, it is possible to operate this device with a 1.9V battery. I would, however, recommend the use of "high power" alkaline batteries.

B) The variable resistor that controls the tuning of the 1500 Hz tone is omitted from the schematic. It should be on the wire between the 1300 and 2600 resistor locations.

C) The 8038 chip, made by Intersil, is no longer carried by many Radio Shacks. I understand that stores will not be restocking this chip after their current stock is depleted. I would recommend that people acquire this chip from Advanced Computer Products Inc. (8008548230) at a cost of \$1.75 each.

D) The 20K, 15 turn resistor is sold by Radio Shack at \$1.49 apiece (PN 273-540). I suggest that these parts be bought through mail order houses (such as Digi-Key (800)DIGIKFY) at an approximate cost of \$1.20 apiece, or 10 for \$10.

E) Items (c) and (d) allow the hardware oriented persons to construct this frequency generator for under \$30.00 if most or all parts are bought through non-retail houses.

F) It is possible to make a very "professional" generator by replacing the switches with the keyboard from an old or discarded calculator. They will require extensive modification though (as the generator cannot directly utilize a matrix keypad). The basic idea is to peel off the plastic covering and cut traces and add jumpers so that each key becomes a totally separate switch. Texas Instruments calculators have a keypad that isn't too hard to modify this way. If you use this type of switching, you'll find that the single largest component will be the speaker, and the battery running a close second.

Field Support

### Dear Readers:

We have an update to last month's letter from The Creature who discussed using a port selector in the terminal room at the University of Southern California to gain entry to an IBM mainframe.

Recently the University upgraded the port selector device. It no longer recognizes abbreviations for system names. Also, it has been upgraded so that you can't randomly connect to other people's jobs.

Another update: we have been told by at least three callers that there is a mistake in last month's Basic program for the Commodore 64. On line 170 the "U" should be a "T", and on line 175 the "T" should be a "U". One of the callers said that the program did not work anyway. He said that "only one tone

would break the dial-tone." Note: this program produces MF tones and not touch tones. We have indicated in past issues how they can be used. We hope that the programs worked for you.

If you have other programs, plans for electronic toys, as well as profiles of your favorite extenders or computer systems, or even useful data, be sure to send them along to us.

### Dear 2600:

Your December issue containing the BBS numbers arrived in mid-month. I called all the numbers in my area code and got a computer on only two out of fourteen numbers. One of these is Bonneville Communication's Teletext 5 (part of our local TV station). The rest are private lines, some to dial phones. I would appreciate more information next time as to ring-back or whatever answering system is in use.

Fellow in Utah

### Dear 2600:

We subscribed to *Computel* more than a year ago. To date, we have not received a single *Computel* issue. You commented about *Computel* in your issue 2-15. Several times, we complained to *Computel*. And several times we were contacted by Mr. John Reynolds, each time with a dumb excuse and assurance that the issues were forthcoming. We weren't the only ones stung by *Computel*. At least a dozen of our readers informed us of similar experiences with *Computel*. I am convinced that *Computel* was/is an FBI sting operation. Consider:

1) *Computel* advertised for more than a year in most issues of *Computers and Electronics*, *Radio Electronics*, *BYTE*, and other computer magazines. We ran a rough survey of their advertising and came to the conclusion that *Computel* spent close to \$100,000 on advertising alone! For most of this period, *Computel* also had a toll-free number.

2) During this entire time, *Computel* never produced a single issue that we know of! At least five of our readers stated to me that they complained to the Postal Inspector and to the magazines about *Computel*'s lack of fulfillment. None of these five people received any kind of response from the Postal Service or the magazines, and *Computel*'s ad still persisted many months later! In the decade-plus that we've been in the mail order business, we have seen a lot of mail order firms lose their advertising within three months of the onset of non-fulfillment complaints to the magazines.

The size of *Computel*'s operation and the apparent flaunting of the law with impunity very strongly implies that *Computel* was part of a government scam. We suspect that this scam was conducted for two reasons:

1) To compile lists of folks involved in and interested in phreaking of all types.

2) To purposely rip off folks interested in phreaking to discourage them from subscribing to future legitimate phreaking publications. To damage publications such as those produced by *Consumertronics Co.*, 2600, and other technological anti-establishment publications.

John J. Williams, *Consumertronics Co.*

### Dear Readers:

We hope this was not true, but we also got complaints from people who received nothing more than promotional material. We did not receive even that much.

Over the last year, we called the office of *Computel* several times and got the same types of responses that Mr. Williams got.

We hope that our readers can investigate this matter on their own, or perhaps even visit *Computel*'s office in Van Nuys, California. They can be reached toll free over Skyline by calling 950-0988 and entering "2COMPUTEL" after the tone.

(continued on page 3-16)

# The 2600 Information Bureau

011-44-1-246-8000	STARLINE	202-488-8358	Events & Highlight	212-758-2600	FIS
011-44-1-246-8017	STARLINE INSTRUCTIONS	202-527-3540	Newsline-Fed Trade Comm.	213-840-3371	MOROVITZ
011-44-1-246-8020	TELECOM SPORTS REPORT	202-527-5022	Newsline- Govt Policy Wash	213-868-7638	DIAL-A-PREP
011-44-1-246-8030	TELECOM TRAVEL LINE	202-527-8699	Pressline-Dept Labor	213-935-1111	Signusoid
011-44-1-246-8031	TELECOM TRAVEL LINE	202-545-6700	PENTAGON	214-224-1799	Polarity Reverser
011-44-1-246-8032	TELECOM TRAVEL LINE	202-545-6706	Pentagon	214-328-5236	Signusoid
011-44-1-246-8033	TELECOM TRAVEL LINE	202-687-0002	FCC Newsline	214-647-2996	isp Data Information
011-44-1-246-8035	LONDON RADIO	202-532-0530	Jobsline-Dept. of State	214-651-1461	Data-Tel
011-44-1-246-8045	TELECOM RACING BULLETIN	202-633-7321	Jobsline-Dept of Justice	214-621-9577	Pay Phone in SMJ area
011-44-1-246-8088	CIVIL EMERGENCIES	202-687-0101	DEFENSE DEPT OPERATOR	214-742-1195	ALLT
011-44-1-930-4832	QUEEN ELIZABETH	202-727-9816	Jobsline-Fed Info Center	214-742-3354	BELL, SOUTHWESTERN
011-44-61-165000	TV SCHEDULE	202-765-3283	Jobsline-Hud Dept	214-742-1857	BELL, SOUTHWESTERN
011-44-61-168000	STOCK REPORT	202-755-5055	Jobsline-EPA	214-742-2836	MTS/MP CREDIT CHECKING
201-623-0150	Stock Quotes	202-755-7395	Jobsline-EPA	214-742-3180	W37C
201-808-2425	UNIDM DL	202-699-0200	Answering Service	214-742-3999	LDSKES
202-224-3081	Joint Economic Comm	202-965-2700	Watergate	214-795-5000	Data-Tel
202-224-8841	Senate Floor Activity (Rep)	202-242-6482	UNIV OF MARYLAND	215-387-1129	UNKNOWN
202-224-8891	Senate Floor Activity (Rep)	202-242-6852	UNIV OF HARTFORD	215-583-9273	MP3000
202-225-1600	Dem Legislative PSM	202-527-0006	QULS11	215-564-6572	ATLANTIC CITY CASINO
202-225-2020	Rep Legislative PSM	202-771-3930	PIONEERS	217-429-9532	Dial-A-Prostitute
202-225-7099	Botanic Garden Events	206-527-0030	Recliner Open Tone	219-264-7121	Indiana Time
202-225-7400	House Floor Activity Dem	206-641-2381	Voice Of Chester, Tone 111	302-357-1452	Jobsline-Natl Oceanic Admin
202-225-7430	House Floor Activity Rep	206-722-0068	USR Cant be called Rec.	301-495-1205	Jobsline-Natl Inst Of High
202-252-4337	Jobsline-Dept of Energy	212-246-7170	WYLBUR	301-881-6186	MP3000
202-270-9000	Christian Message Line	212-369-6114	RS75/E, SPENCE SCHOOL	301-881-6157	MP3000
202-275-2183	Jobsline-Govt Printing Off	212-369-7805	Joing Rec	301-881-6158	MP3000
202-275-6161	Jobsline-General Accounting	212-370-4304	CSMOS NY	302-212-8885	MP3000
202-287-4091	Treasury Dept-Securities	212-394-1293	CSMOS NY	303-299-1111	General Telephone Typ
202-287-4500	Treasury Dept Auction Dates	212-588-0897	BIRTY	303-371-1255	JC PENNY CREDIT CARD
202-343-1100	EPA	212-598-7001	NY STATE COLLEGE	303-447-2540	RS75/S, CBCIS
202-343-2154	Jobsline-Dept of Interior	212-654-8977	999999	303-499-7111	US BUREAU OF STANDARDS
202-343-3020	Newsline Dept of Interior	212-736-3377	RAPID DATA	303-978-2111	WANG VS/50
202-347-3222	F.A.A.	212-777-7600	NY STATE COLLEGE	304-344-9811	Weather (Charleston)
202-357-2000	Dial-A-Phenomenon	212-799-5077	ABC New York Feed Line	304-346-1961	Extended Weather Charleston
202-357-2020	Dial-A-Museum (Smithsonian)	212-807-1257	CHELSEA SOLARS	304-346-9950	All carrier circuits busy
202-357-8555	Energy Res Comm	212-947-7522	IT: DIALCOM NETWORK	304-348-9951	All carrier circuits busy
202-393-1947	E: Highlights Dept Of Scarc	212-975-2727	F.D.A.	304-348-9952	Improper Carrier Rec
202-393-4100	Economic News	212-985-1660	Stock Quotes	304-348-9953	Code to be preceded by 750
202-393-4100	Weekend Preview Dept/Source	212-254-4914	Dial-A-Athiest	304-348-9954	950 Not Before Carrier Rec
202-426-1931	Newsline-Dept Trans	212-277-0174	UNANON	304-348-9955	Polarity Reverser
202-426-6435	Natl Parks Info DC Area	212-331-0437	UNANON	304-348-9956	All Circuits Busy Rec.
202-447-2108	Jobsline-Dept of Agr.	212-372-6244	Jokes	304-348-9957	Technical Difficulty Rec.
202-447-8233	Natl Grain Summary	212-571-6527	SATANIC MESSAGES	304-348-9959	Carrier Code Not necessary
202-456-1414	White House	212-442-2708	LYOLA COLLEGE	305-973-6766	Pompano Park Horse Racing
202-456-2100	Presidential Press Office	212-654-7664	Dial-A-Song	305-994-2160	Data-Tel
202-456-2343	President's Daily Schedule	212-689-6594	Newsline- Govt Police LA	305-994-2331	Fading Carrier
202-456-3352	ETA Intelligence Switched	212-742-8000	LAUSE	305-994-9960	Call Not Go Through Rec
202-456-6269	First Lady's Daily Schedule	212-745-1000	LIST OF MANY NUMBERS	305-994-9963	Payphone Inst. Rec
202-472-2109	Newsline-Dept of Education	212-755-2000	JOKES	305-994-9964	LBA Reference Rec

## 2600

(ISSN 0749-3851)

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 312-645-7770 UNKNOWN  
 312-663-0884 Newsline- Govt Policy Chgo  
 312-759-9191 Diversadial  
 312-752-1651 Dial-A-Trance  
 312-759-7950 DEPAUL  
 312-972-7503 ARBESON NET LAB  
 312-990-5700 TSO  
 312-274-5621 FTS  
 312-759-5790 UNINET  
 312-277-4340 OAKLAND UNIV  
 312-577-0250 WAYNE STATE  
 312-577-0266 MERIT TIMES-NEWS  
 312-644-3240 HIGH SCHOOL  
 312-644-3940 UNKNOWN  
 312-759-8803 N.S.P.S.  
 312-769-8971 ANN ARBOR SCHOOLS  
 312-835-3373 BELL, MICHIGAN  
 312-837-9500 OAKLAND SCHOOLS  
 312-881-0659 BELL, MICHIGAN, REPAIR CORP  
 312-892-0060 BELL, MICHIGAN  
 312-925-9937 BELL, MICHIGAN  
 312-953-8572 BELL, MICHIGAN, CDS  
 312-982-1532 BOND-NET  
 312-982-1537 UNKNOWN  
 312-984-0041 BELL, MICHIGAN  
 312-984-2000 SENAT COMPUTER  
 312-984-2919 CHARGE CARD ASSOCIATION  
 312-984-2054 ENGINEERING-SMITH/HENCHMAN  
 312-984-2500 UNIV OF KY  
 312-984-4042 BELL, MICHIGAN  
 312-984-5808 MICH NAT'L BANK  
 312-984-8858 LAW OFFICES  
 312-423-1313 SYRACUSE DECS  
 404-685-3460 SEARS CREDIT CHECK  
 404-643-7396 SYNTRADER MUSIC  
 408-280-1901 TRW  
 412-754-7661 SLIPPERY ROCK BCL  
 414-259-1233 RVS CABLEVISION  
 414-445-4050 DEC FAX  
 414-475-8010 DEC PDP-11/70, RSTS/E  
 414-542-4494 RSTS/E  
 414-543-6789 RSTS/E  
 414-543-4494 UNKNOWN  
 414-628-3091 Tone  
 414-628-3067/4 Tele-Copier  
 414-628-3067/7 Tele-Copier  
 414-628-3010/7 Muted Loop  
 414-628-3013/4 Inf Silence  
 414-628-3015 Tone & Silence  
 414-628-3017 2 clicks & silence  
 414-628-3028 Tone & Silence  
 414-628-3052 Special Operator  
 414-781-0004/7 Data-Tels  
 414-781-0010 Milliwatt  
 414-781-0014 Milliwatt  
 414-781-0015 Dial-Tone  
 414-781-002x CC number  
 414-781-003x CC number  
 414-781-0040/4 CO number  
 415-327-5226 NEC  
 415-361-2500 MEMLE PARK CORP.  
 415-367-3411 UNKNOWN  
 415-466-4998 BEVELCON  
 415-436-7015 UNIS  
 415-436-7020 UNIS #3  
 415-643-7439 DIAL-IN-EXCUSE  
 415-857-8193 HF3000  
 415-977-2868 UNINET  
 415-255-3064 Milliwatt  
 415-385-4170 HF3000  
 512-472-2181 WEIRD RECORDING  
 512-477-4263 Outside Work Line Rec  
 512-477-5833 just 1st dial 1 or 0 rec  
 512-477-9936 not be completed rec  
 512-477-9941 "USER" 25"  
 512-474-8011 ADS IN COMPUTERS  
 515-294-4446 ISC  
 516-567-8033 LYRICS TIMES-NEWS  
 516-516-2890 RSTS/E  
 516-794-1707 Stock Quotes  
 602-765-7001 AFDONIA STATE  
 604-257-3261 UNKNOWN  
 605-452-6025 UNIS  
 609-452-8736 PRINCETON  
 609-734-3131 REARONS  
 609-799-7147 UNKNOWN VMS  
 612-333-0889 Top "9" tone  
 612-333-1456 Facsimile Machine  
 612-333-1693 Tone Test  
 612-333-1705 Tone Test  
 612-333-1708 Tone Test  
 612-333-1741 Tone Test  
 612-333-1992 Tone Test  
 612-339-5200 INT'L GRAPHICS  
 612-411-9907 Odd Tone  
 612-424-8674 M1  
 612-256-8935 M1  
 617-417-9200 NORTHEASTERN UNIV.  
 617-637-1234 Foster Time  
 617-732-1251 HARVARD  
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 615-485-9889 WAY 1744  
 615-746-0002 1000 Hz Tone  
 619-748-0001 Signuspid  
 619-748-0005 Fac-Sim Operator  
 703-761-4520 MEGABOOM  
 704-347-1112 Milliwatt  
 704-847-1113 Open Circuit  
 715-603-2700 NBSA  
 715-792-7500 EDUCATIONAL RESEARCH  
 715-795-1200 SHELLE VULCAN  
 715-981-8181 Houston Repair  
 714-576-4361 POLYTECH UNIV.  
 714-550-0003 Signuspid  
 714-530-9958 Polarity Reverser  
 714-536-3492 TRW  
 714-774-4511 TRW  
 714-891-1257 2-TAL-A-BECK  
 714-897-5511 General Telephone Tlx  
 714-956-3570 TRW  
 714-962-3365 H.A.T.S.  
 717-872-3911 MILLERSVILLE UNIVAC  
 718-273-9978 Continuous Ring  
 718-338-4990 The Hook Line  
 718-524-1111 New York Feed Line  
 718-524-6815 Swamy  
 718-976-2777 P.D.A.  
 800-221-0226 NBSA HOTLINE  
 800-221-2371 ADS  
 800-221-4945 Woman USA News  
 800-222-0248 Dow Phone  
 800-225-8456 AUTONET  
 800-228-1111 VISA CREDIT CHECK  
 800-229-6777 Zip Code Information  
 800-238-5342 National Cotton Council  
 800-242-4022 Seag Report In Los Angeles  
 800-249-0151 WHITE HOUSE PRESS  
 800-252-6112 USC NEWSLINE  
 800-255-9892 Us-Time Distribution  
 800-325-1082 NAVY FINANCE DTR.  
 800-321-3043 Beepers  
 800-321-3049 Beepers  
 800-321-3052 Beepers  
 800-321-3074 Beepers  
 800-325-3867 ARTS PROGRAM GUIDE  
 800-325-4072 COMBAT ARMS & SER ENLISTED.  
 800-325-4055 COMBAT SUPPORT BRANCH  
 800-325-4290 ROYD USAF COMBAT ARMS COV.  
 800-325-9999 Strange Tone  
 800-327-6764 AUTONET  
 800-331-3791 Shell Credit Center  
 800-335-3149 Uninet Offices  
 800-338-3366 The Source Customer Service  
 800-362-7173 MASTERCARD/VISA NO.  
 800-357-4710 Snap Report-San Bernado  
 800-368-5486 "Satellite Network Control"  
 800-368-5500 Corp Update  
 800-368-5534 MCI UPDATE  
 800-368-5540 Senate Update  
 800-368-5542 Nuclear Regulatory Comm. Op  
 800-368-5567 Business Line  
 800-368-5695 Republican Talk Line  
 800-368-5744 AFL-CIO News  
 800-368-5814 NTL ASSN OF REALTORS  
 800-368-5844 AM HERITAGE FOUNDATION  
 800-368-5844 Comsat Satellite Corp  
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 800-424-2424 Am Fed of Teachers  
 800-424-5040 N.A.P. Newsline  
 800-424-5201 EXPURT IMPORT BANK  
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 800-424-8807 TRANSPORTATION NEWSLINE  
 800-424-9050 White House Press Office  
 800-424-9128 DEPT OF ENERGY NEWSLINE  
 800-424-9129 IN SPANISH  
 800-424-9180 COMMANDER IJ  
 800-424-9440 COMMANDER IJ  
 800-424-9494 TELEMAIL  
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 800-424-9864 Energy Line  
 800-426-5954 FUSEE 50. NAVAL SUPPLYARD.  
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 800-521-8428 PSA-11  
 800-523-0677 ALCOHOL TOBACCO AND FIREARM  
 800-525-1054 Caribbean News  
 800-525-3025 Caribbean News  
 800-525-7525 An Express Curr Each Pt  
 800-528-2121 American Express voice crdt  
 800-532-1556 FED INFORMATION CTR  
 800-544-6363 Alliance Tele-Conference  
 800-548-9200 Chicago Announcement #2  
 800-562-0040 Metroshore Offices  
 800-621-1540 Sports Line  
 800-621-6094 American Medical Assn  
 800-622-0858 Calif Medical Assn  
 800-631-1167 Decepers  
 800-645-5350 UNKNOWN  
 800-645-5456 Sports Line  
 800-882-1361 FTB Stock Prices  
 800-942-7077 BSNK  
 806-741-5351 COLLEGE COMPUTER  
 806-741-6701 COLLEGE COMPUTER  
 815-633-6533 Diversadial  
 815-677-9301 Diversadial  
 815-723-9980 LOOP (TONE SIDE)  
 815-721-9980 LOOP (OTHER SIDE)  
 815-893-1122 Line Test #, hot tones  
 816-474-9900 C&G 13ME?  
 817-332-8471 FORTWORTH SCHOOL  
 817-338-0100 Ft. Worth Time & Temp  
 817-467-1895 Signuspid  
 817-469-4500 Page-A-Phone's  
 817-469-4599 Page-A-Phone's  
 817-469-500x Mobile-Telephone-Numbers  
 817-469-511x Page-A-Phone's  
 817-469-5200 Page-A-Phone's  
 817-469-5997 Page-A-Phone's  
 817-625-6401 SIS  
 817-642-0537 WOODHILL MEDICAL  
 817-844-8174 Ft. Worth Time & Temp  
 817-977-0548 RSTS/E  
 817-977-0683 AUTOBANK IMPORTS  
 820-571-5523 The Gospel Line  
 818-702-0429 The Observatory  
 818-716-9242 ...Input Line  
 818-761-3730 The Movie Line  
 818-765-1700 California Recordings  
 818-765-2000 Javat Joke Line  
 818-765-6300 Feedback  
 818-765-7300 California Recordings  
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 904-644-2251 UNIV OF FLORIDA  
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 914-268-9966 Carrier  
 914-297-1277 Stock Quotes  
 916-445-2864 Env of California  
 TALKS LAST 10  
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 BACON'S SCHEDULED  
 BUS. FILM SCHEDULE  
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 MIDNIGHT 12M NEWS  
 (SCHEDULED TIME)  
 PLEASE SEND US MORE  
 NUMBERS SO WE CAN  
 MAKE THIS LIST EVEN  
 BIGGER.

# SYSTEMATICALLY SPEAKING

## Sprint Unites with US Telecom

Central News Service

In the largest consolidation yet of the turbulent long-distance telephone industry, the nation's third and fourth largest services competing with AT&T, GTE-Sprint and US Telecom agreed to merge and form a new company.

This closely follows the proposed merger of MCI and SRS-Skyline which was announced last fall.

The creation of the US Sprint Communications Company, which faces Federal approval, will also merge their data communications subsidiaries, GTE Telenet and US Telecom Data Communications Company, which until a few months ago was known as United.

Sprint and US Telecom will be able to combine their advertising and network-holding efforts in the new company which will have a subscriber base of 2.2 million.

The new company would be the third largest long distance company, behind AT&T and MCI, and would be jointly owned by GTE and United Telecommunications.

## Write Protect Tabs Wrong

Business

If you are having data loss from a batch of floppy disks made by 3M, it is possible you have the red write-protect tabs it shipped with some of its disks last June and July.

The problem with the red tabs, used to cover the write-enable notch in floppy disks, is that they are transparent to the infrared light used by a few disk drives to check for the presence of the tab. While 3M said it has known about the problem since July, the company claims that the disks themselves are not defective. 3M will replace the red tabs if you contact the company.

One customer, who damaged his Microsoft Word and Smart Works program disks in January, called 3M's toll-free hotline [which is not listed with information] and had his disks replaced. He had Mitsubishi disk drives. About 1 percent of all disk drives will not detect the red tabs, according to a 3M spokesman.

## Bell Atlantic & MCI Collaborate

Central News Service

As a result of the recent antitrust judgment against AT&T and the seven Bell operating companies, Bell Atlantic is signing up for MCI's long distance service. The switch won't affect customers since it's only intended for internal use of Bell Atlantic. Also, as part of the agreement, MCI is buying billing services from the local Bell Atlantic phone companies. This means that as of January 1, 1986, Bell Atlantic companies started sending MCI bills to MCI customers.

## Cellular Phones in England

Southwest

Cellular telephone users who travel overseas will soon be able to use the service in the United Kingdom.

Bell Atlantic Mobile Systems is setting up a reciprocal program with Cellnet of London, called Service Link, which will allow customers to pick up portable cellular telephones on their arrival at airports. Fees for the service have not yet been fixed.

## Infrared Beeper Will Find You

USA Today

There's no escaping the infrared eyes of a new telephone beeper system. Telocall, from Telcor Inc., finds you virtually anywhere in a building and triggers a beeper that is worn like a pin. If you want to take the call, the system rings the nearest phone. If you don't, you press a button on the beeper.

When a call comes in, the sensors instantly search a room, much like an invisible flash bulb going off, and beep the person being called. The system is designed to locate as many as 1,000 individuals in 250 separate locations within a 50,000-square-foot office.

## Electronic Tax Returns Are Here

Business

The Internal Revenue Service has announced that it will begin accepting 1985 tax returns in electronic form through approved tax preparation services.

The Electronic Filing Project, if successful, could eventually allow personal computer owners to file returns electronically, although not in the near future, according to a spokesman for the IRS.

The project could have a double advantage - for taxpayers, electronic filing may speed up the refund process; for the IRS, it may also reduce the cost of handling the millions of returns filed each year. Three areas have been selected for the initial test: Phoenix, Cincinnati, and the Raleigh-Durham and Fayetteville areas of North Carolina.

H&R Block Inc., of Kansas City, Missouri, is the first tax preparation service to announce participation in the IRS project. Customers of designated offices can use H&R Block's Rapid Refund service.

Other tax preparation services are being considered by the IRS to participate in the project, but those preparers must first pass transmission tests in order to be certified.

H&R Block prepares more than 9 million tax returns a year, or about 10 percent of the individual returns filed in the country.

## Acoustic Trauma

The New York Times

On Father's Day this year, an 18-year-old Scotch Plains, New Jersey man was talking on a telephone and experienced what he believed was an electrical shock.

An investigation by AT&T and New Jersey Bell later revealed that the young man was an "acoustic trauma" victim.

Phone company officials describe acoustic trauma as "a pop or a click" that can sound as loud as the backfire of an automobile.

Like many victims of acoustic trauma, the man suffered no serious injuries but had a ringing sensation in his ears for about a day.

A New Jersey Bell spokesman said acoustic trauma is not the same thing as an electrical shock.

"The telephone converts electrical currents into sound waves," he said. "Acoustic trauma comes as a result of sound waves, and not electrical currents."

Devices known as "acoustic filters" are built into telephone receivers and are designed to minimize the clicking noises that sometimes result from malfunctions within a telephone network.

One or two cases of acoustic trauma are reported to AT&T each year.

## DIAL BACK

(continued from page 3-10)

modem into believing that it is seeing dial tone, ringback and so forth until he supplies answerback tone and connects and penetrates the system, security should not depend on this sort of dial-back.

The best thing to do to solve this problem is to use a different line for dial-out. Use of random time delays between dial in and dial back combined with allowing the modem to answer during the wait period (with provisions made for recognizing the fact that this wasn't the originated call—perhaps by checking to see if the modem is in originate or answer mode) will substantially reduce this window of vulnerability but nothing can completely eliminate it.

Obviously, if one has an older CO switch, it is not good at all to use the same line for dial in and dial out.

It is best to make sure that the phone number for the dial out is different from that of the dial-in, perhaps even in a different exchange, which isn't all that impossible.

## MAIL

(continued from page 3-12)

Dear 2600:

I have a great idea, which seems so simple, but I have never heard anyone mention it. It concerns protecting the userlog of a BBS from the prying eyes of the Gestapo police, or FBI, or whoever.

You see, when they raid your house to take your BBS, they have only a few reasons. It is either to punish you for asking questions or to get a juicy list of people to investigate along with their favorite passwords. Sometimes they will call up other boards using the user names and passwords they just confiscated and try to read personal mail. This strikes me as being both immoral and illegal. But anyway, the trick is to not have the userlog available.

I have solved this problem by putting the userlist in memory on a ram-disk. I have a simple program which makes my computer think that part of the memory is really a disk that you can write to or read from. When the cops come racing in and pull the plug in an attempt to confiscate my computer, the information is gone. It just disappears. The only problem is that you need a computer that has more than 64K, like a PC or something, because most programs need 64K of available memory to run.

It is unlikely that they will try to probe your computer before they unplug it and take it from your home "as evidence," because even their technical people are pretty incompetent. And they don't usually send their technical people along anyway. I am pretty sure of that, because they like to take calculators and normal telephones along with the computer, and that shows an extreme lack of knowledge.

Since the BBS is almost always on, the userlog can be hacked up on a disk outside of the computer, but encrypted in some way. All you have to do is scramble it, then rename it and put it in the middle of your Basic programs or wherever. No one but the NSA would find it. And they have better things to do...

Mojave Dessert

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